

WHAT IS CLAIMED IS:

1. A measuring device, comprising:

a diffraction grating for diffracting
incident light to resolve the light into a
5 plurality of diffraction lights having different
orders;

first detecting means for measuring an
intensity of a predetermined diffraction light, of
the plurality of diffraction lights;

10 second detecting means for measuring an
intensity of a diffraction light other than the
diffraction light received by said first detecting
means, and being reflected by an object to be
measured.

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2. A measuring device according to Claim 1,
wherein the diffraction light to be detected by
said second detecting means is zero th order
diffraction light diffracted by said diffraction
20 grating.

3. A measuring device according to Claim 1,
further comprising a spectroscope for making the
light to projected upon said diffraction grating,
25 into approximately monochromatic light.

4. A measuring device according to Claim 1,

further comprising a condensing mirror provided between said diffraction grating and said first detecting means.

5 5. A measuring device according to Claim 4, wherein said condensing mirror comprises one of a concave-surface toroidal mirror, a cylindrical mirror, a spherical mirror, and a revolutionally elliptical-surface mirror.

10 6. A measuring device according to Claim 4, wherein, in a plane containing central axes of incident light and reflected light upon and from said condensing mirror, said diffraction grating
15 and said first detecting means are approximately conjugate with each other with respect to the condensing mirror.

20 7. A measuring device according to Claim 1, wherein said diffraction grating is a plane diffraction grating of laminar type or blaze type.

25 8. A measuring device according to Claim 3, wherein the approximately monochromatic light is one of EUV light, soft X-rays and X-rays.

9. A measuring device according to Claim 3,

further comprising a curved-surface reflection mirror disposed between said spectroscopic and said diffraction grating.

- 5 10. A measuring device according to Claim 8, wherein, in a plane containing central axes of incident light and reflected light upon and from said curved-surface reflection mirror, an exit pupil of said spectroscopic and said diffraction
- 10 grating are approximately conjugate with each other with respect to said curved surface reflection mirror.